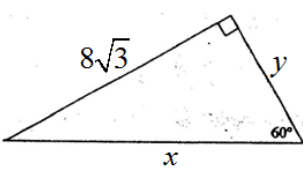
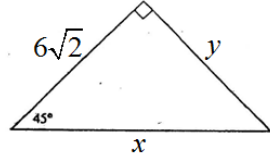
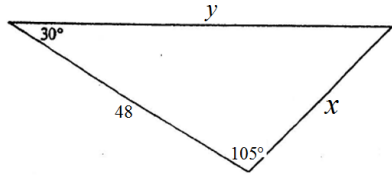
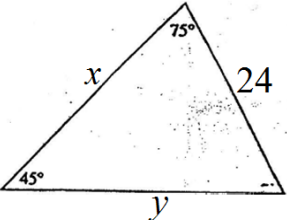
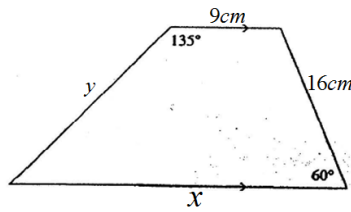
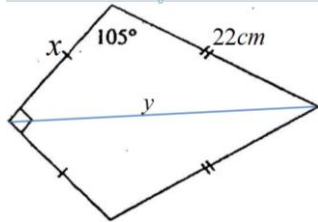
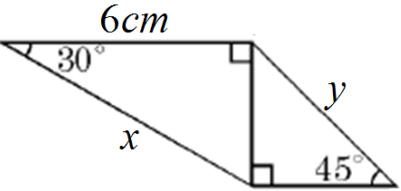
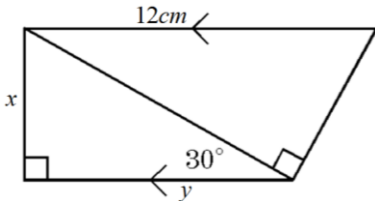
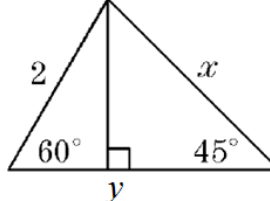
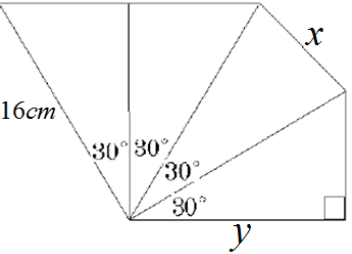
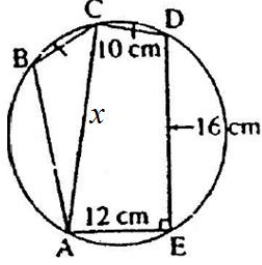
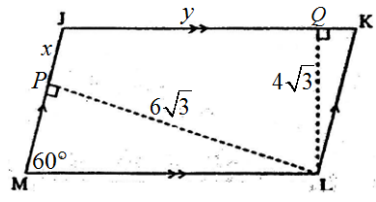
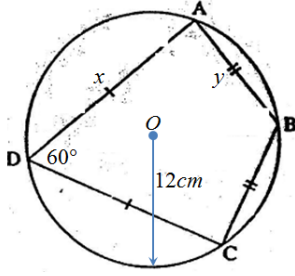
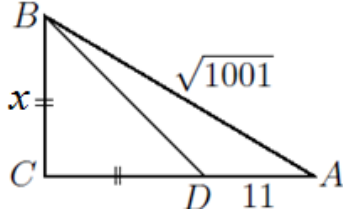
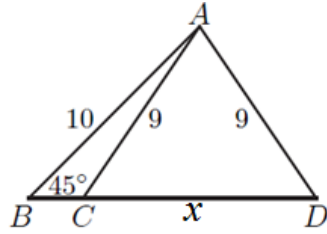


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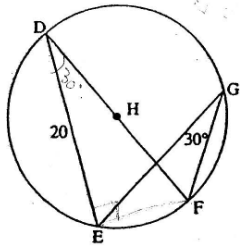
M9 Enriched: Section 6.3 Special Triangles: 30-60-90 & 45-45-90

1. Find the values of the missing sides "x" and "y"

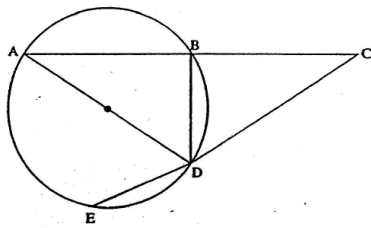
<p>a) $x =$ $y =$</p> 	<p>b) $x =$ $y =$</p> 	<p>c) $x =$ $y =$</p> 
<p>d) $x =$ $y =$</p> 	<p>e) $x =$ $y =$</p> 	<p>f) $x =$ $y =$</p> 
<p>g) $x =$ $y =$</p> 	<p>h) $x =$ $y =$</p> 	<p>i) $x =$ $y =$</p> 
<p>j) $x =$ $y =$</p> 	<p>k) $x =$ $\angle BAC =$</p> 	<p>l) $x =$ $y =$</p> 
<p>m) $x =$ $y =$</p> 	<p>n) $x =$</p> 	<p>o) $x =$</p> 

2. An isosceles right triangle has a leg of $9\sqrt{8}$. What is its perimeter?

3. What is the length of DF?



4. If $AB=BC$, $BD = ED = 10\text{cm}$, find the length of AC.

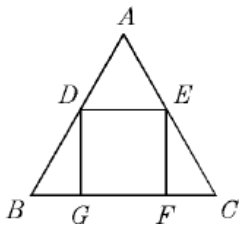


5. The perimeter of an equilateral triangle is equal to its area. What is the length of the side of the triangle?

6. A square has a diagonal of length $10\sqrt{6}$. What is the perimeter of the square?

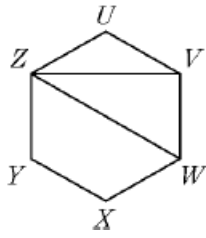
7. In a right triangle, one leg is longer than the other leg by a factor of $\sqrt{3}$. If the longer leg is $9\sqrt{3}$ units long, what is the perimeter of the triangle?

8. $\triangle ABC$ is an equilateral triangle, and DEFG is a square of side 10cm. Find the length of a side of $\triangle ABC$.

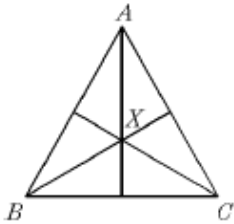


9. If the degree measures of the angles of a triangle are in the "x", "2x", "3x", and the longest side is 12cm long, then find the perimeter of the triangle.

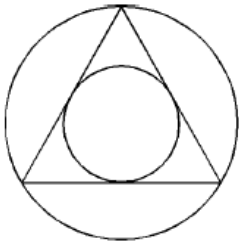
10. In the diagram, UVWXYZ is a regular hexagon with a perimeter of 42cm. what is the length of \overline{ZV} and \overline{ZW} ?



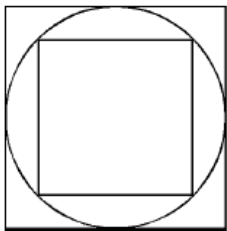
11. In the diagram, $\triangle ABC$ is an equilateral triangle with sides of length $10\sqrt{3}$. Point "x" is the centroid. What is the length of \overline{AX} ?



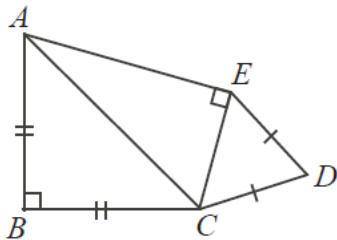
12. In the diagram, the smaller circle has a radius of 10cm. Determine the radius of the larger circle



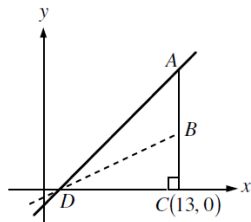
13. The small square has side length 12cm. Calculate the side length of the large square.



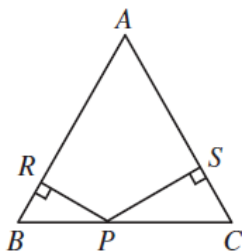
14. In the diagram, $AB = BC = AC = 2\sqrt{2}$, $CD = DE$, $\angle CDE = 60^\circ$ and $\angle EAB = 75^\circ$. Determine the perimeter of figure ABCDE.



15. In the diagram, the equation of the line AD is $y = \sqrt{3}(x-1)$. BD bisects $\angle ADC$. If the coordinates of B are (p, q) , what is the exact value of q ?

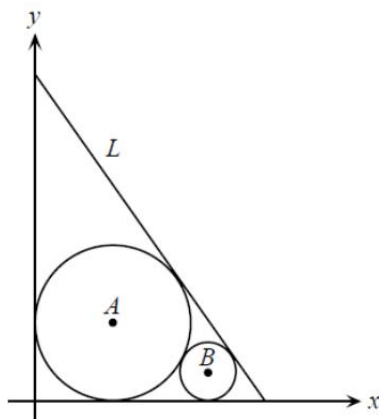


16. Triangle ABC is isosceles with $AB = AC$ and $BC = 65\text{cm}$. "P" is a point on BC such that the perpendicular distances from "P" to AB and AC are 24cm and 36cm respectively. What is the area of triangle ABC?



15. The circle with centre A has radius 3 and is tangent to both the positive x-axis and positive y-axis, as shown. Also, the circle with centre B has radius 1 and is tangent to both the positive x-axis and the circle with centre A. The line L is tangent to both circles. The y-intercept of line L is

- (A) $3 + 6\sqrt{3}$ (B) $10 + 3\sqrt{2}$ (C) $8\sqrt{3}$
 (D) $10 + 2\sqrt{3}$ (E) $9 + 3\sqrt{3}$



Challenge:

A circle is tangent to three sides of a rectangle having side lengths 2 and 4 as shown. A diagonal of the rectangle intersects the circle at points A and B. The length of AB is

- (A) $\sqrt{5}$ (B) $\frac{4\sqrt{5}}{5}$ (C) $\sqrt{5} - \frac{1}{5}$
 (D) $\sqrt{5} - \frac{1}{6}$ (E) $\frac{5\sqrt{5}}{6}$

